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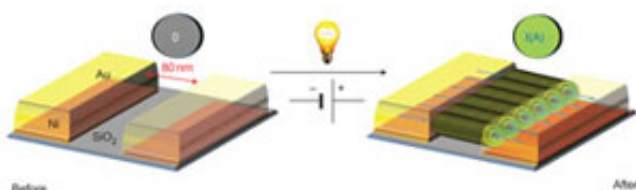


# National Nanomanufacturing Network

## Newsletter

Volume 5 Issue 4 - April 2012

## Game Changing Nanomanufacturing Technology: Keeping a Cautious Eye Towards the Future



Assessing the impact of emerging nanomanufacturing science and research requires an objective evaluation of the road to commercialization. In many instances, the path from "lab to fab" is filled with potholes, barriers, and detours, requiring new technologies to demonstrate significant benefits in both cost and performance in order to supplant existing technology and infrastructure. A prime example includes processes and materials being considered for semiconductor integrated circuit manufacturing. While several emerging nanomanufacturing methods, such as directed self assembly (DSA), nanoimprint lithography (NIL), and atomic layer deposition (ALD) are gaining acceptance as a competitive approach for specific steps within the integration sequence, the process for industry adoption remains lengthy and expensive. As a result, the impact of nanomanufacturing methodologies on existing industries and infrastructure has been limited to date. Conversely, the utilization of nanocomposite materials has had a significant impact on numerous industries including aerospace, sporting goods, automotive, and medical devices, enabling functional materials providing higher strength, lighter weight, and lower cost for a broad range of applications. The latter is a better example of a game changing technology providing a completely new approach and infrastructure to solve industry's problem, and further expanding markets, products, and profits.

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Advertisements



RSL Initiatives in Nanotechnology  
2012 Workshop  
May 1-2, 2012  
Portland, OR

**Destination Nano:  
Concept to  
Commercialization**



May 15 - 16, 2012 - Lowell, MA

## Job Opportunities

[Flexible Electronics](#)

[Development Engineer](#)

Sharp Laboratories of America

[Post-Doctoral fellow \(m/f\) for the \(coherent\) nano-diffraction beamline](#)

ESRF

[Support Engineer for In-Line Metrology](#)

imec

[Post-Doctoral Fellow \(m/f\) for Time Resolved and Extreme Conditions Science on the XAS beamlines ID24 and BM23](#)

ESRF

## Upcoming Events

May 20-24, 2012

Regards,  
National Nanomanufacturing Network

Learn More about the  National Nanomanufacturing Network

## NanoBusiness provides review of Nanotech Commercialization Conference - April 3-5 - Durham, NC



This year's Nanotech Commercialization Conference, April 3rd-5th, was a great success, with over 300 participants converging in Durham, NC. A reception at the headquarters of the Center of Innovation for Nanobiotechnology (COIN) on Tuesday night, a reception featuring "The Art of the Small" exhibit at Bay 7 on Wednesday night and post-conference festivities at the nearby Durham Bulls Athletic Park completed 3 days of lively discussions and insightful presentations.

At Tuesday evening's reception Congressman G.K. Butterfield spoke about the importance of nanotechnology for his district, the state of North Carolina, and the nation. Former Congressman George J. Hochbrueckner, who represented the First District of New York for four terms, also honored us with his presence and brief comments. The conference began in earnest on Wednesday, April 4th with three Executive Directors sharing the introductory remarks. Griff Kundahl from COIN and John Hardin from the Office of Science & Technology, NC Department of Commerce joined me in welcoming the participants and setting the stage for the speakers to come.

[More...](#)

## FDA Continues Dialogue on 'Nano' Regulation

[Materials Research Society: New Diamond and Nano Carbons Conference](#)

May 22-24, 2012

[Swiss NanoConvention 2012](#)

May 23, 2012

[Nano for Business 2012: Building Toward a Sustainable Future](#)

June 18-21, 2012

[Nanotech 2012 Conference and Expo](#)

[View Full Calendar](#)

## Upcoming Calls

[Nano for Business 2012: Building Toward a Sustainable Future](#)

Contact Joan Stanescu at  
jdsj@lehigh.edu

[Nanomaterials: Application & Properties 2012](#)

Submissions accepted until  
June 15, 2012

[ANM 2012](#)

Submissions accepted until:  
June 15, 2012

[MRS Fall Meeting 2012](#)

Submissions accepted until:  
June 19, 2012

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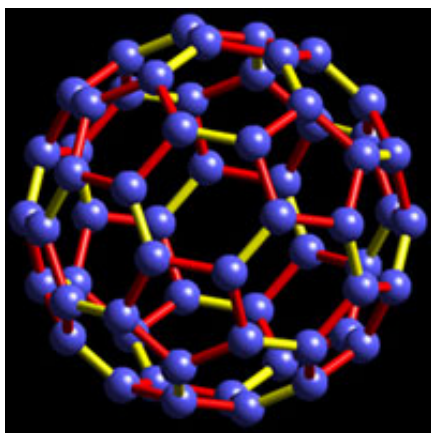


## Recently Published

From Our Affiliates

Slow-light dispersion by transparent waveguide plasmon polaritons

[Physical Review B 85\(15\)](#)



The first draft guideline, "Draft Guidance for Industry, Considering Whether an FDA-Regulated Product Involves the Application of Nanotechnology", was published in the Federal Register in June, 2011. The FDA is still reviewing and receiving comments on this document from the public.

In April 2012 the FDA is issuing two new draft guidelines for manufacturers of food substances and cosmetics, which are also open for public comment.

FDA Commissioner Margaret A. Hamburg, M.D., says the guidelines provide a starting point for the nanotechnology discussion. "Our goal is to regulate these products using the best possible science," Hamburg says. "Understanding nanotechnology remains a top priority within the agency's regulatory science initiative and, in doing so, we will be prepared to usher science, public health, and FDA into a new, more innovative era."

[More....](#)

## Flexible Organic LED (OLED) lighting reaches high energy efficiency thanks to shared research effort



Solvay, Holst Centre and several other partners demonstrate flexible 69cm<sup>2</sup> Organic LED (OLED) lighting tiles with an efficiency of 30lm/Watt.

Chemical group Solvay and Holst Centre have demonstrated high efficiency flexible Organic Light

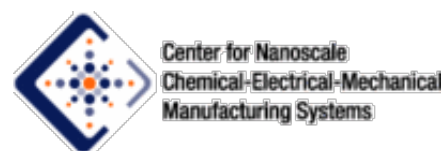
Flexible, All-Organic  
Chemiresistor for Detecting  
Chemically Aggressive Vapors  
[Journal of the American Chemical Society](#)  
[134\(10\):4553-4556](#)

Nanoparticle Hydrophobicity  
Dictates Immune Response  
[Journal of the American Chemical Society](#) [134\(9\):3965-3967](#)

Ultra-long, free-standing,  
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[Biomacromolecules](#) [13\(3\):584-588](#)

## Affiliated Centers



Emitting Diodes (OLED) lighting tiles with a surface area of 69cm<sup>2</sup>. These large-area demonstrators contain several layers deposited by solution processing at Holst Centre and additional layers applied by conventional vacuum deposition at Solvay.

OLEDs are a new lighting technology enabling flat diffuse lighting sources, and are complementary to inorganic LEDs, which are by nature well suited as spotlights. Current OLED devices are made at pilot scale by depositing many layers on glass by vacuum process. Solvay and Holst Centre were able to deposit several layers of the OLED by solution processing, which brings the use of printing technologies to produce OLEDs closer.

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